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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2004/001841

International filing date (day/month/year)
07.06.2004

Priority date (day/month/year)
06.06.2003

International Patent Classification (IPC) or both national classification and IPC
G06F3/00

Applicant
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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IAP12 Rec'd PCT/PTO 35 DEC 2005

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 a sequence listing
 table(s) related to the sequence listing
 - b. format of material:
 in written format
 in computer readable form
 - c. time of filing/furnishing:
 contained in the international application as filed.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. The following document has not been furnished:

- copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
- translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US6016385 (YEE et al.) 18 January 2000
D2: WO98/51451 (KRAMER et al.) 19 November 1998 *
D3: EP0714043A (YASUKAWA, M) 29 May 1996 *
D4: US6396497 (REICHLEB, B. A.) 28 May 2002 *
D5: US5612718 (BRYAN, J. A.) 18 March 1997 *

* refers to a document cited as evidence of the skilled person's general knowledge.

2. The application does not meet the requirements of Article 6 PCT because claims 3, 4, 9, 14 are not clear.
 - 2.1. Claim 1 seeks to define a physical entity (namely a head-mounted display) by reference its use by an operator who is not part of the claimed entity. The claim should be directed to mission control system comprising a head-mounted display wearable by an operator as it can be deduced from figure 1 and accompanying text.
 - 2.2. Claim 3 which formally refers to claims 1 or 2 is not clear since the terms "headset" and "microphone" are used in claim 2 only. Probably claim 3 should refer to claim 2 only.
The same objection applies *mutatis mutandis* to claims 8, 10, 13 and 16 with respect to the term "operators seat" which first appears in claim 5 while claims 8, 10, 13 and 16 refer either directly or indirectly also to claims 1 to 4.
 - 2.3. In claim 4, the formulation "said head-mounted display displays a window movable within a larger work window" does not define the window displayed by the head-mounted display as a part of a larger virtual work area which is not entirely

displayed (see description, page 9, line 28 to page 10, line 12). In order for the claim to be supported by the description this feature needs to be included.

- 2.4. In claim 9 the term "pointer" has no clear and unambiguous meaning in the field of input devices and renders therefor the subject matter of the claim unclear. It probably means a pointing device connected to the mission computer as it can be deduced from its realisation as a trackball pointer in figure 1, reference 11 in combination with page 7, line 3 of the description of the application as filed.

- 2.5. Claim 14 seeks to define a physical entity (namely a physical interface) by reference to an external entity (namely a "removable external filing device") which is not part of the claimed entity. Thereby any physical interface suitable to establish a connection between the system and any kind of "external filing device" anticipates the subject matter of claim 14.
Moreover the term "external *filling* device" has no generally recognized meaning in the field at issue. Therefor the subject matter of the claim renders unclear. As the application as filed does not contain any explanation from which the man skilled in the art can directly and unambiguously derive the meaning of the term, claim 14 should be deleted.
The only hint to the interpretation of the term "external filing device" as to be an external backup storage device could be derived from the priority document of the application as filed (see TO20030426, page 15, line 4 to 11). However as the content of the priority document is not part of the application as filed it can not be the base of a clarification of the claims of the present application.

3. Moreover, the present application does not meet the requirements of Article 33 PCT, because the subject-matter of independent claim 1 does not involve an inventive step in the sense of Article 33(2) PCT.
 - 3.1. Document D1 (see in particular figure 2 and accompanying text) discloses an operator control system comprising:
 - a head-mounted display (see column 2, line 11 in combination with figure 2, reference 13 and figures 4 and 5) worn by an operator,
 - a digital glove (see column 4, line 32 to 40 in combination with figure 6) and

- tracking means for tracking the movements of the head mounted display and the digital glove (see column 4, line 32 to 40 and line 47 to 50)

all of them connected to a communication system (see column 3, line 63 to column 4, line 8) fulfilling the function of a mission computer allowing the operator to receive visual information via the head-mounted display and to impart gestural commands by means of the digital glove.

3.2. The subject-matter of independent claim 1 differs from operator control system of D1 disclosed in D1 only in that:

- (a) it has at least two digital gloves (instead of only one in D1) and
- (b) the mission computer is housed in the operator station.

The problem solved by distinguishing feature (a) is how to enable the operator to impart two handed gestures for instance to achieve a greater variety of doable command gestures. However it would be the most apparent design option for the man skilled in the art to use a second digital glove to solve this problem.

Regarding distinguishing feature (b) the man skilled in the art would immediately recognize housing in the operator station as one of several alternatives to store the mission computer which he would chose e.g. in order to achieve an easy maintainability of the computer system at the site of the mission control system (see also e.g. D4, figure 1, reference 14).

3.3. Hence starting from D1 and using only his general knowledge the man skilled in the art would arrive at the subject-matter of claim 1, which is therefore obvious.

4. Dependent claims 2 to 16 do not contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of Article 33(3) PCT with respect to inventive step, since their subject-matter consists merely of design features which are widely known *per se* and which perform their usual function, without interacting to produce an unexpected technical effect. As can be shown exemplarily by numerous documents:

- regarding claims 2 and 3:

The usage of a headsets and microphones to receive audio information and impart audio commands in combination with head-mounted displays either integrated therein or as external devices is well known in the art of control systems (see e.g. D2, figure 34, reference 3434 and 3428 in combination with page 51, line 22 to 28 and D3, figure 35 in combination with page 5, line 50 to 54).

- regarding claim 4:

Displaying in the head-mounted display a part of a larger virtual working area wherein the displayed part changes according to the movement of the head-mounted display is a well known measures to create a virtual environment around the operator (see e.g. D3, figures 1 and 3 in combination with page 8, line 46 to 57 and D4 figures 1 and 2 in combination with column 5, line 46 to column 6 line 28).

- regarding claims 5 and 6:

The integration of an operator seat having a compartment for the a mission computer is rendered obvious e.g. by D4, figure 1, reference 14; the incorporation of a compartment for the head-mounted display is also obvious as can be seen from D1, figure 2).

- regarding claims 7:

The control of electrooptic devices via hand operated control devices is known from e.g. the remote control of ordinary electronic surveillance cameras from centralized surveillance institutions.

- regarding claims 8 to 13:

The claims refer to the ordinary use of various well known input devices for computer systems. Their mechanical integration into the armrests of an operator seat for e.g. ergonomic reasons is well known e.g. from pilots chairs (see also e.g. D2, figure 34 in combination with page 52, line 1 to 6 and D5 figures 1, 7 and 31). The usage and integration of biometric sensors to permit access to an electronic system to authorized persons only is a well known measure in the field of access control systems (e.g. laptops with integrated fingerprint authentication means).

- regarding claims 14:

Even if the applicant could prove that there is evidence in the application as filed showing that the term "external filing device" has to be interpreted as "external storage device", claim 14 could not meet the requirements of Article 33(3) PCT with respect to inventive step, since use of external storage devices and their connection to a computer system via an appropriate interface is well known since the beginning of the use of tape recorders for storing data in combination with home computers in the 1980s.

- regarding claim 15:

The usage of a tracking system comprising a fixed transmitter (e.g. of an electromagnetic field) in combination with moveable receivers for the determination of the users movement is merely a choice between equivalent tracking means (e.g. based on optical working principles) for the person skilled in the art.

- regarding claim 16:

The use of additional displays to allow observers to follow the actions taken by an operator in a virtual reality environment is well known e.g. from the observation screens provided by several virtual reality games. The fitting of such a display into the rear surface of the operators seat is a mere design choice the man skilled in the art would use e.g. to achieve an undisturbed field of view for the operator in case the head-mounted display is of a semitransparent type or to achieve a very compact construction of the overall system without the need of wiring the additional display with external wirings.

5. The present application does not meet the requirements of Article 33 PCT, because the subject-matter of use claims 17 and 18 does not involve an inventive step in the sense of Article 33(2) PCT, as the pure installation of an obvious mission control system into a known vehicle would be obvious for the man skilled in the art e.g. to achieve greater regional flexibility when using this system to control a military mission.

6. For the sake of completeness the following minor deficiencies are mentioned:

6.1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the document D1 is not identified in the description and the relevant background art disclosed therein is not at least briefly discussed.

7. Because of the reasons stated in sections 2 to 5 above, claims 1 to 18 are not allowable. In view of the available prior art, it does not appear that any part of the application could serve as a basis for a new allowable claim. Thus, in the present case it would appear that a negative IPER should be issued.

Should the applicant nevertheless regard some particular matter as patentable, he is reminded that the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the international application as filed (Article 34(2)(b) PCT).

In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion of passages of the international application as filed on which these amendments are based (see also Rule 66.8 (a) PCT).

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the international application as filed (Rule 66.8(b) PCT).

Axel Griesbach